Math Grade 3

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Grade 3	The student has yet to demonstrate competence in solving problems involving time or money, communicating with appropriate vocabulary, recognizing representations of fractions, and identifying geometric shapes.	The student solves basic problems involving time and change from a transaction less than one dollar. The student uses concrete representations of fractions with denominators up to ten. The student uses limited vocabulary when identifying attributes of two- and three-dimensional shapes.	The student solves problems using a calendar or elapsed time and in determining change from a transaction less than one dollar. The student recognizes multiple representations of fractions with denominators up to ten. The student utilizes multiple representations in expressing fractions, solving problems and communicating solutions. The student uses appropriate vocabulary when identifying attributes of two- and three-dimensional shapes. The student applies concepts of measurement in problem solving including the selection of appropriate units and tools.	The student solves multi-step problems using a calendar or elapsed time and in determining change from a transaction less than one dollar. The student creates and uses multiple representations in expressing fractions, solving problems, and communicating and justifying solutions.

Number and Operation Grade 3	The student at this level does not demonstrate mastery in the concepts and/or procedures related to place value, multiplication and division, and fractions.	The student identifies place value and recognizes numbers written in standard form. The student has limited understanding of multiplication and division but knows some basic facts. The student solves single-step contextual problems involving addition and subtraction. The student identifies and names fractions as parts of a whole. The student compares fractions in limited contexts.	The student uses place value to represent numbers in various forms. The student knows basic multiplication and division facts and models the operations using various representations. The student solves routine contextual problems involving the four basic operations. The student understands various meanings and representations of fractions. The student compares and orders fractions, and adds and subtracts fractions with like denominators.	The student applies the concept of place value in various contexts and representing numbers in various forms. The student understands the meanings of multiplication and division through the use of multiple representations and relates multiplication and division as inverse operations. The student applies multiple strategies, including mental computations and estimation to solve contextual problems involving the four basic operations. The student understands the various meanings and uses of fractions and creates multiple representations of fractions and operations with fractions. The student interprets, compares, and orders fractions using multiple methods.
Algebra Grade 3	The student at this level does not demonstrate mastery in the concepts and/or procedures related to arithmetic properties, analyzing and extending patterns, and finding unknown values in number sentences/equations.	The student identifies the arithmetic properties. The student has basic knowledge that addition and multiplication are commutative but cannot model or apply that knowledge. The student analyzes and extends basic numeric and geometric patterns. The student can determine the unknown values in number	The student solves problems using the arithmetic properties. The student understands that addition and multiplication are commutative. The student can determine the unknown value in number sentences/equations. The student analyzes and extends patterns involving multiplication and division. The student describes numeric and	The student uses the arithmetic properties to verify a conclusion. The student models the commutative, associative, and distributive properties. The student creates, analyzes, and extends patterns and relationships involving multiplication and division. The student describes numeric and geometric patterns and

		sentences/equations only involving addition and subtraction.	geometric patterns in context.	relationships in context using multiple representations. The student can express mathematical relationships using number sentences/equations and determine the unknown value.
Geometry Grade 3	The student at this level does not demonstrate mastery in the concepts and/or procedures related to describing, analyzing and classifying two-dimensional figures. The student has limited/no understanding of congruence and symmetry of figures. The student does not understand concepts relating to measurement.	The student identifies two-dimensional figures. The student recognizes congruent figures but cannot identify lines of symmetry. The student recognizes some common measures/units of capacity, weight, length and perimeter. The student selects the appropriate tool for measuring length and makes limited measurements for length.	The student describes and classifies two- dimensional figures. The student identifies lines of symmetry. The student recognizes the common measures/units of capacity, weight, length and perimeter and uses them to solve problems. The student knows some common equivalences for length in both the customary and Metric systems.	The student describes, analyzes, compares and classifies two-dimensional figures. The student relates the concept of symmetry to congruence. The student understands the measurement concepts of capacity, weight, length and perimeter as measurable attributes and selects appropriate units, strategies (including estimation) and tools to solve problems. The student knows and uses the common equivalences for length in both the customary and Metric systems.
Data Analysis, Statistics, and Probability Grade 3	The student at this level does not demonstrate mastery in the concepts and/or procedures related to data collection, organization, representation and interpretation.	The student recognizes various representations of data and answers basic questions about data displayed in simple representations.	The student organizes data in order to construct frequency tables, bar graphs, pictographs, and line plots. The student uses data displays to solve problems. The student compares and contrasts different representations of data.	The student chooses an appropriate method for displaying data. The student constructs and analyzes frequency tables, bar graphs, pictographs, and line plots and uses them to solve problems and make predictions. The student compares, contrasts, and interprets different representations of data.

Math Grade 4

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Grade 4	The student incorrectly uses the commutative, associative, and distributive properties. The student compares basic fractions using only concrete representations. The student compares basic geometric figures.	The student uses the commutative, associative, and distributive properties. The student compares decimals using concrete representations. The student determines the correct change from a transaction less than five dollars. The student can compare objects with respect to physical attributes.	The student at this level correctly uses the commutative, associative, and distributive properties to verify conclusions. The student compares decimals using concrete and pictorial representation. The student determines the correct change from a transaction. The student compares objects with respect to a given geometric or physical attribute and selects an appropriate measurement instrument for a task.	The student correctly applies the commutative, associative, and distributive properties to solve problems and verify conclusions. The student creates and uses multiple representations to solve problems with decimals. The student uses multiple representations to solve contextual problems and expresses answers using appropriate units.
Number and Operation Grade 4	The student at this level does not demonstrate mastery in the concepts and/or procedures related to place value, basic multiplication and division facts, and decimals.	The student solves problems involving whole numbers and fractions. The student compares and orders fractions and decimals with the same place value. The student finds place	The student solves problems involving whole numbers, fractions and decimals. The student compares and orders fractions and decimals. The student identifies and describes	The student solves multi-step problems involving whole numbers, fractions and decimals. The student solves problems involving fractions and decimals. The student

		value from hundredths to hundred-thousands. The student demonstrates limited mastery in basic multiplication facts and multiplying two-digit numbers. The student recognizes common equivalent forms of decimals, fractions (both proper and improper), and mixed numbers. The student solves contextual problems involving whole numbers and common fractions.	place value from hundredths to hundred-thousands. The student multiplies two and three-digit numbers. The student determines the factors and the multiples for a number. The student recognizes equivalent forms of decimals, fractions (proper and improper), and mixed numbers. The student solves contextual problems involving whole numbers, fractions, and decimals with the same place value.	applies multiple strategies to multiply two and three-digit numbers (such as the distributive property, arrays, and the area model). The student determines common factors and common multiples for two numbers. The student converts among decimals, common fractions, improper fractions, and mixed numbers. The student solves contextual problems involving whole numbers, fractions, and decimals.
Algebra Grade 4	The student at this level does not demonstrate mastery in the concepts and/or procedures related to numeric and geometric patterns, sequences, and mathematical expressions/equations.	The student identifies and extends simple numeric patterns that involve addition and subtraction, and simple geometric patterns that repeat. The student uses basic rules to extend a simple sequence of numbers. The student describes common patterns using words and can find a pattern depicted in a table. The student writes simple mathematical expressions/equations using letters and symbols involving addition and subtraction.	The student identifies and extends simple numeric patterns that involve all operations, and simple nonnumeric patterns that grow or repeat. The student uses rules to extend a sequence of numbers. The student describes patterns using words and tables. The student writes simple mathematical expressions/equations and finds unknowns in simple equations.	The student describes, identifies, and extends numeric patterns that involve all operations, and nonnumeric patterns that grow or repeat. The student creates and uses rules to describe a sequence of numbers. The student describes patterns using words, tables, and graphs.

Geometry Grade 4	The student at this level does not demonstrate mastery in two and three-dimensional shapes, area, transformations, angle measures, and locating points on a coordinate plane.	The student defines attributes of geometric figures (such as coordinates of the vertices or whether the sides are parallel or perpendicular or neither). The student can define an acute, right, and obtuse angle. The student determines the perimeter and area of common rectangular figures. The student selects the appropriate units and tools for solving problems involving area of common rectangular figures. The student locates points in the first quadrant of the coordinate plane.	The student defines and describes attributes of geometric figures (such as identifying the coordinates of the vertices or whether the sides are parallel, perpendicular, or neither). The student classifies angles by size in two-dimensional shapes. The student solves problems that include estimating and measuring area. The student converts measurements within a single system that are common in everyday life. The student selects the appropriate unit, tool, or strategy for solving problems involving area. The student locates and graphs points in the first quadrant of the coordinate plane. The student identifies images resulting from reflections and translations.	The student measures angles in two-dimensional shapes. The student determines the appropriate unit for solving problems involving area. The student connects the area measure to multiplication using a rectangular model. The student locates and graphs points in the first quadrant of the coordinate plane. The student identifies reflections, translations, and rotations in simple tilings and tessellations. The student identifies images resulting from rotations.
Data Analysis, Statistics, and Probability Grade 4	The student at this level does not demonstrate mastery in the concepts and/or procedures related to creating and evaluating representations of data, and basic measures of central tendency.	The student creates a simple representation of data such as bar graphs and picture graphs to estimate and solve problems. The student can define basic measures of central tendency and can work with ordered data sets.	The student creates and evaluates simple representations of data such as bar graphs, picture graphs, and line graphs to estimate and solve problems. The student uses informal probabilistic thinking to describe chance events. The student uses stem-and-leaf plots. The student can use an organized list or tree diagram to list all possible outcomes of a	The student creates and evaluates representations of data such as frequency tables, bar graphs, picture graphs, pie charts, and line graphs to estimate and solve problems. The student determines a simple probability from a context that includes a picture. The student develops and uses stem-and-leaf plots by applying the concept of place value. The student

			situation involving chance. The student determines measures of central tendency.	determines measures of central tendency to describe and compare sets of data.

Math Grade 5

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Grade 5	The student can solve basic problems involving addition and multiplication. The student communicates answers only in numerical form and without units.	The student makes reasonable estimates of basic fraction and decimal sums. The student can draw a simple conclusion about a basic geometric figure described in a given series of geometric statements. The student begins to recognize the remainder in a division problem given the fraction form.	The student makes reasonable estimates of fraction and decimal sums or differences. The student can draw a conclusion about a figure described by a given series of basic statements. The student recognizes the unit associated with the remainder in a division problem or the fractional part of a whole given in either decimal or fraction form. The student identifies information, whether missing or extraneous, in a contextual problem.	The student models and makes reasonable estimates of fraction and decimal sums or differences. The student makes and tests conjectures about geometric properties and develops logical arguments to justify conclusions. The student interprets the meaning of remainders as discrete values or not. The student correctly organizes information from contextual problems and successfully solves contextual problems.
Number and Operation Grade 5	The student at this level does not demonstrate mastery in the concepts and/or procedures related to place value, equivalence, division of whole	The student finds the place value from millions to millionths in context. The student represents numbers in various forms including	The student identifies and describes place value from millions to millionths in context. The student represents and compares numbers in	The student expresses the greatest common factor in exponential and standard notation. The student selects appropriate methods and applies

	numbers, and addition and subtraction of fractions, mixed numbers and decimals.	equivalent decimals, fractions, and mixed numbers. The student identifies prime factors of numbers less than or equal to 50. The student solves problems involving division of two- and three-digit whole numbers and demonstrates limited estimation skills. The student solves problems involving addition and subtraction of fractions and decimals.	various forms including equivalent decimals, fractions, and mixed numbers. The student identifies the greatest common factor and the least common multiple. The student estimates and solves problems involving division of two- and three-digit whole numbers. The student determines a reasonable solution to a contextual division problem and identifies the remainder. The student solves problems involving addition and subtraction of fractions, mixed numbers, and decimals.	them accurately to estimate and solve problems involving division of two- and three-digit whole numbers. The student determines a reasonable solution to a contextual division problem and interprets the remainder appropriately. The student makes reasonable estimates and solves problems involving addition and subtraction of fractions, mixed numbers, and decimals.
Algebra Grade 5	A student at this level does not demonstrate mastery in the concepts and/or procedures involved in using order of operations to evaluate algebraic or numeric expressions, equations and inequalities.	The student applies the substitution property and order of operations to evaluate algebraic expressions with one variable involving decimals or commonly used fractions and to evaluate multi-step numerical expressions involving whole numbers and commonly used fractions. The student finds the unknown in a single-step equation involving whole numbers.	The student applies the substitution property and order of operations to evaluate algebraic expressions and to evaluate multi-step numerical expressions involving fractions or decimals. The student finds the unknown in a single-step equation involving fractions. The student identifies a value that makes an inequality true.	The student finds the unknown in a single-step equation involving fractions and mixed numbers. The student generates a list of values that makes an inequality true.
Geometry Grade 5	The student at this level does not demonstrate mastery in the concepts and/or procedures involved in finding area, perimeter, surface area, and volume of various figures. The	The student calculates the area and the perimeter of triangles and parallelograms. The student describes horizontal and vertical distances using the first quadrant of the coordinate	The student solves contextual problems involving area and perimeter of triangles and parallelograms. The student decomposes simple irregular shapes to determine the	The student applies strategies to find perimeter and area of irregular shapes. The student compares/relates three-dimensional objects to two-dimensional representations of

	student no understanding of the concept of measurement.	system using whole numbers. The student recognizes and uses basic units of measurement with a limited degree of accuracy.	perimeter and area. The student identifies three-dimensional objects from a two-dimensional representation of the object. The student solves problems involving volume of rectangular prisms. The student describes horizontal and vertical distances using the first quadrant of the coordinate system using whole numbers. The student recognizes and uses units of measurement in context with a reasonable degree of accuracy.	the object and vice versa. The student solves problems involving surface area of rectangular prisms. The student solves contextual problems involving surface area and volume of rectangular prisms. The student describes horizontal and vertical distances using the first quadrant of the coordinate system using whole numbers, fractions, and decimals.
Data Analysis, Statistics, and Probability Grade 5	The student at this level does not demonstrate mastery in the concepts and/or procedures involved in recording, displaying, and interpreting data. The student is unable to determine measures of central tendency.	The student reads data from various representations including double bar and line graphs. The student calculates median and mode using simple sets of data.	The student depicts data using various representations including double bar and line graphs. The student calculates and uses measures of central tendency to describe data.	The student makes predictions based on data in various representations. The student visually identifies outliers and their possible effects on measures of central tendency.

Math Grade 6

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Grade 6	The student has yet to demonstrate competence in using estimation, performing accurate computations, or using algebraic representation.	The student recognizes a reasonable prediction based on data given in some representations. The student makes reasonable estimates and performs accurate computation involving whole numbers. The student recognizes concrete representations for integers (manipulatives or pictures). The student matches representations to arithmetic properties and is beginning to relate algebraic expressions to algebra tiles.	The student makes conjectures and predictions given data in multiple representations. The student makes reasonable estimates and performs accurate computations involving fractions, decimals, and whole numbers. The student models integers by multiple representations (manipulatives, pictures, and symbols). The student selects representations to model arithmetic properties and models expressions with algebra tiles.	The student uses multiple steps to make conjectures and predictions based on data. The student makes reasonable estimates and uses them to check accuracy of computations involving fractions, decimals, and whole numbers. The student creates multiple representations for integers (manipulatives, pictures, symbols, and verbal scenarios.

Number and Operation Grade 6	The student has not demonstrated use of procedural problem-solving with positive fractions. The student has limited comprehension of integer quantities. The student has not developed strategies for comparing with ratios.	The student solves one-step routine problems with some operations with positive rational numbers. The student recognizes equivalent representations of commonly-used fractions, mixed numbers, decimals, and integers. The student correctly locates integers and positive rational numbers on a number line. The student solves simple problems involving ratios and percents.	The student solves one- and two-step problems involving all operations with positive rational numbers. The student recognizes equivalent representations of common fractions, mixed numbers, decimals, and integers. The student uses the number line to represent and compare integers and/or positive rational numbers. The student applies an appropriate operation to accurately solve routine problems including those involving ratios, rates and percents.	The student analyzes and solves multi-step problems involving several operations with positive rational numbers. The student understands relationships among fractions, mixed numbers, and decimals in order to transform from one form to another. The student uses the number line to represent and compare contextual integer and rational number quantities. The student applies proportionality in reasoning to accurately solve contextual problems involving ratios, rates and percents. In all problem-solving the student makes appropriate connections among operation, notation, and procedure and interprets solutions correctly with respect to context.
Algebra Grade 6	The student does not apply the concept of variable. The student has not developed strategies for computing that involved several operations. The student has yet to extend plotting ordered pairs beyond the first quadrant.	The student uses given expressions or a given equations that model contextual situations. The student shows limited application of the order of operations with grouping symbols when evaluating and simplifying expressions. The student recognizes when a value solves a linear equation. The student recognizes the number line graph that matches a solved inequality. The student plots	The student writes and uses expressions and equations to model contextual situations from tables and graphs. The student uses algebraic expressions and properties to analyze numeric and geometric patterns. The student applies properties to evaluate and simplify expressions following the order of operations with grouping symbols. The student solves linear	The student writes and uses expressions and equations to model contextual situations and mathematical relationships represented in various ways. The student analyzes, generalizes, and represents numeric and geometric patterns using algebraic expressions. The student solves linear equations/inequalities using multiple strategies, interprets and evaluates solutions for the

		ordered pairs correctly in all quadrants of the Cartesian plane.	equations/inequalities using multiple strategies and represents solutions on a number line. The student graphs ordered pairs in all quadrants and on the axes of the Cartesian plane. The student recognizes the qualitative graph that models a contextual situation.	particular context, and represents solutions on a number line. The student generates the qualitative graph that models contextual situations and generates contextual situations depicted by a qualitative graph.
Geometry Grade 6	The student is challenged by measurement and their relationships in plane geometric figures. The student does not visualize a solid as a net. The student has limited understanding of the concept of variable and uses formulas/expressions inconsistently.	The student measures angles with a protractor. The student identifies plane and solid geometric shapes and can select pairs of congruent/similar figures given a visual representation. The student can identify a two-dimensional representation for a prism or cylinder and use it to determine surface area. The student can substitute values into a given formula to calculate surface area and volume of prisms and cylinders.	The student determines angle measures in plane geometric figures by creating and solving equations based on relationships. The student applies the relationships between lengths of sides in a triangle (the Triangle Inequality Theorem). The student describes plane and solid figures and their relationships (congruence/similarity.) The student determines the circumference and area of a circle given the radius. The student calculates the volume of prisms and cylinders using an appropriate method. The student states the relationship between volumes of related pairs of solids (cylinder – cone or prism – pyramid with congruent base and height).	The student identifies or classifies figures based on stated properties. The student determines measures associated with a circle given one piece of information (radius, diameter, circumference, area). The student calculates surface area and volume of prisms, pyramids and cylinders. The student applies the relationship between volumes of related pairs of solids (cylinder – cone or prism – pyramid with congruent base and height).

Data Analysis, Statistics, and Probability Grade 6	The student misinterprets data represented in bar graphs and circle graphs. The student demonstrates little understanding of the concept of probability.	The student recognizes types of bias. The student reads information from a representation of data (bar graphs, circle graphs.) The student can identify misleading aspects of data display. The student calculates theoretical probability for simple events in routinely familiar contexts.	The student identifies an appropriate sample for a study and classifies a sample as biased or unbiased. The student interprets information from various representations of data (bar graphs, circle graphs, stem-and-leaf plots). The student can explain misleading aspects of data displays. The student calculates theoretical probability for both simple and compound events in familiar contexts.	The student evaluates methods for selecting an unbiased sample for surveys/polls by justifying procedures. The student analyzes, interprets, draws conclusions, and makes predictions about populations from data represented by any of various displays. The student creates appropriate representations of data. The student calculates theoretical probability for both simple and compound events in many contexts and compares experimental and theoretical probability. The student uses theoretical probability to compute odds of an event and demonstrates understanding of complimentary events.

Math Grade 7

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Grade 7	The student incorrectly uses an algorithm for solving arithmetic problems. The student does not connect different representations of linear relations. The student lacks understanding of pattern extension.	The student uses an algorithm for solving routine proportion problems. The student recognizes linear relations in graphs and symbolic equations. The student extends a variety of patterns (represented by tables and graphs).	The student uses proportional reasoning in solving routine contextual problems and in working with map scales. The student recognizes different relations (directly/inversely proportional, linear, and nonlinear) in multiple representations (table, graph, symbolic.) The student generalizes linear and geometric patterns (represented by tables and graphs) to a symbolic rule.	The student applies proportional reasoning appropriately in solving contextual problems including non-routine contexts. The student describes various relations (directly/inversely proportional, linear, and nonlinear) and can translate among multiple representations (table, graph, symbolic). The student generalizes a variety of patterns (represented by tables, graphs, or verbally) to a symbolic rule.
Number and Operation Grade 7	The student demonstrates deficiencies in computation and ordering involving positive rational numbers and/or integers. The student lacks strategies for determining	The student correctly applies the order of operations excluding exponents and mixed numbers. The student compares commonly used rational numbers and represents order	The student correctly applies the order of operations including positive integer exponents. The student represents and compares rational numbers using the	The student correctly applies the order of operations including positive and/or negative integer exponents. The student represents and compares rational numbers in multiple

	equivalences.	using symbolic notation. The student determines roots for perfect squares and perfect cubes and locates rational numbers on a number line. The student represents integer values and has procedural understanding of operations on integers. The student translates between fractions and percents for commonly used values. The student simplifies a stated ratio and solves a stated proportion.	number line and/or symbols. The student identifies equivalent large numbers in standard and scientific notation. The student determines roots of perfect squares and perfect cubes, approximates square roots and cube roots for any whole number (including non-perfect squares and non-perfect cubes), and correctly locates roots on a number line. The student solves contextual problems requiring operations with integers. The student translates among ratios, percents, and fractions. The student constructs ratios and proportions and uses them to solve routine contextual problems.	representations. The student translates between equivalent numbers in standard and scientific notation, distinguishes between very large and very small numbers in scientific notation, and uses numbers in scientific notation contextually. The student uses roots of perfect squares and perfect cubes contextually. The student solves contextual problems requiring operations involving both integers and rational numbers. The student generates alternate representations for ratios, percents, and fractions. The student applies proportional reasoning in constructing ratios and proportions to solve complex contextual problems.
Algebra Grade 7	The student shows little understanding of problem-solving involving variables and variable expressions. The student has not developed strategies for solving linear equations or inequalities. The student does not exhibit recognition of the connection between the two sets involved in linear relations.	The student evaluates algebraic expressions involving positive rational values for either coefficients or variables. The student solves one-variable linear equations and linear inequalities (that do not require changing the inequality sign) and represents solution sets on the number line. The student determines if a linear relation is a function given the graph. The student matches linear functions and their graphs. The student	The student evaluates algebraic expressions involving positive rational values for coefficients and variables. The student solves one-variable linear equations and inequalities with rational coefficients. The student solves inequalities including those that require changing the inequality symbol and represents the solution set on the number line. The student recognizes proportional relationships in linear graphs.	The student evaluates algebraic expressions involving both positive and negative rational values for coefficients and variables. The student recognizes proportional relationships in linear equations, tables, and graphs. The student determines when a relation is a function using various representations. The student creates and translates among representations of linear functions (set of ordered pairs,

		uses the slope formula and recognizes the coefficient of *x* as the value of slope in a linear function given $f(x) = mx + b$ or $y = mx + b$.	The student determines when a relation is a function using a set of ordered pairs or its graph. The student translates among representations of linear functions (set of ordered pairs, table, equations, function notation, graph, mapping, and verbal rule.) The student analyzes linear functions $(f(x) = mx+b$, standard form of equation, table or set of ordered pairs, graph), determines slope, and interprets slope as a unit rate in context.	table, equations, function notation, graph, mapping, verbal rule, contextual description). Using any representation, the student analyzes linear functions, determines and interprets slope as a unit rate in context, and determines and interprets intercepts in context.
Geometry and Measurement Grade 7	The student may recognize congruent figures but is unable to articulate their characteristics. The student does not recognize similarity and cannot use similarity relationships in problem-solving.	The student understands that corresponding angles of similar figures are congruent. The student solves proportions that involve lengths of corresponding sides or perimeters of similar figures when figures are visually represented. The student states postulates (SSS and AA) used to determine whether a pair of triangles is similar if given a visual representation.	The student uses scale factor and similarity relationships to determine indirect measures (angles, side lengths, and perimeters) for similar figures in routine contexts. The student identifies and applies postulates (SSS, SAS, and AA) for determining whether a pair of triangles is similar.	The student recognizes applications of proportionality in various contexts. The student uses and applies scale factor and similarity relationships to determine indirect measures (angles, side lengths, perimeters, areas, and volumes) for similar figures. The student connects similar triangles with slope in analysis of a linear function.
Data Analysis, Statistics, and Probability Grade 7	The student misinterprets data represented graphically. The students' calculations for a data set do not demonstrate understanding of the measures involved.	The student reads data represented in various data displays (bar graphs, line graphs, circle graphs, box-and-whisker plots, and stem-and-leaf plots.) The student determines the mean and	The student selects an appropriate data display. The student interprets various data displays (bar graphs, histograms, line graphs, circle graphs, box-and-whisker plots, and stem-and-leaf plots.) The	The student organizes and analyzes data to accurately create various data displays. The student analyzes data to calculate and interpret measures of central tendency and spread. The student uses proportional

		median of a data set. The student determines the upper-quartile and lower-quartile given a box-and-whisker plot. The student can classify a prediction as reasonable or unreasonable using theoretical probability.	student determines measures to describe a set of data (mean, median, upper-quartile, lower-quartile, and inter-quartile range.) The student uses proportional reasoning and theoretical probability to make predictions involving familiar situations of chance.	reasoning and theoretical probability to make predictions involving situations of chance.

Math Grade 8

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Grade 8	The student is inconsistent in using familiar equations in problem-solving. The student does not relate characteristics in representations to scenarios those characteristics typify.	The student uses a given equation to solve routine problems involving rate, time, and distance. The student is beginning to identify characteristics of qualitative graphs that match specific scenarios. The student calculates unit rates.	The student solves problems involving rate, time, and distance. The student interprets a qualitative graph for familiar contextual situations. The student applies unit rates to determine the better of two purchases.	The student solves non-routine contextual problems involving rate, time, and distance. The student interprets a qualitative graph for various contextual situations. The student compares multiple pricing scenarios to determine best buys.
Number and Operations Grade 8	The student does not recognize differences among subsets of the real numbers. The student has not assigned relative values to integers, rational, and irrational numbers. The student demonstrates inconsistencies in computations. The student does not demonstrate procedural understanding of exponents.	The student identifies some numbers as belonging to the set of rational or irrational numbers. The student compares, orders, and locates rational numbers on a number line. The student uses rational numbers in solving contextual problems. The student has developed understanding for exponents.	The student places numbers correctly in the set of rational or irrational numbers. The student compares, orders, and locates rational and/or irrational numbers on a number line. The student uses both rational and irrational numbers in solving contextual problems. The student solves contextual problems requiring application	The student can generate elements for any subset of the real number system. The student compares values for rational/irrational numbers using multiple strategies (including location on a number line) and can justify reasoning. The student uses both rational and irrational numbers in solving multi-step contextual

			of the laws of exponents. The student finds products and quotients of numbers in scientific notation.	problems. The student applies laws of exponents to solve real-world problems involving multiplication and/or division of very large and very small numbers in scientific notation.
Algebra Grade 8	The student does not recognize equivalent expressions. The student does not use linear equations in any representation. The student has not developed strategies for working with linear functions or linear systems.	The student recognizes simplest form for many algebraic expressions. The student uses a linear function (given slope-intercept form or the graph) to find function values, determines the x- and y- intercepts and slope. The student graphically solves a system of linear equations given in slope-intercept form and recognizes that the solution may be one ordered pair, many ordered pairs, or no ordered pairs. The student distinguishes between linear and nonlinear functions, given the graph.	The student transforms algebraic expressions to simplest form using algebraic properties. The student solves two-variable linear equations and linear inequalities (graphs, equations, tables, verbal rule.) The student analyzes linear functions given various situations (equation, ordered pairs, table, mapping, or graph) to determine and interpret intercepts and slope in context. The student solves a system of linear equations recognizing the geometric model of the system and the solution (two intersecting lines – one point, two lines that are the same line – infinite number of points, or two parallel lines – no points). The student recognizes linear representations that express proportional relationships. The student distinguishes between linear and nonlinear functions in any representation.	The student generates and uses equivalent forms for algebraic expressions and can explain how algebraic properties were applied. The student creates and solves two-variable linear equations and linear inequalities in multiple representations for contextual situations. Using distinguishing features in any representation, the student classifies and uses linear, quadratic, or exponential functions.

Geometry and Measurement Grade 8	The student does not apply the Pythagorean Theorem or the distance formula in routine problems. The student does not recognize and apply relationships exhibited in parallel lines cut by a transversal. The student does not use basic relationships to facilitate conversions.	The student uses the Pythagorean Theorem to find the length of the hypotenuse given the lengths of the two legs of a right triangle. The student recognizes congruent pairs of angles formed by parallel lines cut by a transversal. The student converts within a measurement system (U.S. Customary, metric system) to find equivalent measures.	The student understands and applies the Pythagorean Theorem to find lengths in real-world problems involving right triangles. The student recognizes the application of the Pythagorean Theorem and the formula for distance between points in the coordinate plane. The student applies relationships between pairs of angles formed by parallel lines cut by a transversal to determine angle measures. The students convert between measurement systems (U.S. Customary, metric system) to find equivalent measures. The student identifies intersections of geometric figures in a plane.	The student understands and applies the Pythagorean Theorem to find lengths in real-world problems involving right triangles in polyhedra. The student explains and uses the relationship between the Pythagorean Theorem and the formula for distance between points in the coordinate plane. The student models and visualizes intersection of plane and solid geometric figures.
Data Analysis, Statistics, and Probability Grade 8	The student does not relate outcome of experiments of chance to probability. The student lacks organization skills for data analysis. The student misrepresents data in displays.	The student calculates experimental probability (relative frequency) for a simple event when given data. The student determines theoretical probability of simple events given organized data. The student creates scatterplots, and selects a graph that shows a line correctly fitted to data in a scatterplot.	The student calculates probability for a simple event using simple experiments with equally likely outcomes and relative frequency. The student determines theoretical probability of simple events using a variety of methods (e.g., multiplication, organized lists, tree diagrams, area models). The student creates scatterplots, approximates a line that fits data. The student uses data presented in various graphical displays and recognizes	The student calculates experimental probability for a compound event. The student determines theoretical probability for compound events using a variety of methods. The student relates experimental probability with theoretical probability. The student recognizes situations that describe independent and dependent events. The student creates scatterplots, approximates a line that fits data, and makes predictions

			misrepresentations of data.	using that line. The student analyzes data presented in various graphical displays and evaluates reported statistics for accuracy and appropriateness and accuracy of data representation.

Algebra I

Standard	Below Basic	Basic	Proficient	Advanced
Algebra I	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Algebra I	The student has not demonstrated an ability to translate between representations of functions and to determine and interpret slope.	The student translates an algebraic representation of a function to a graphical representation. The student determines and interprets the slope of a linear function given its graph.	The student applies mathematical reasoning in problem solving, including contextual problems. The student translates a graphical representation of a function to an algebraic representation. The student determines and interprets slope of linear function given its equation in standard or slope-intercept form.	The student justifies steps in an algebraic solution. The student translates a verbal or numerical representation of a function to an algebraic or graphical representation (and vice versa.) The student determines and interprets slope involving contextual problems.
Number and Operations Algebra I	The student has not demonstrated the skills necessary to perform operations with rational numbers and algebraic expressions.	The student operates with square roots involving integers and monomial algebraic expressions. The student expresses numbers in scientific notation.	The student operates with square roots involving rational numbers and algebraic expressions. The student solves problems involving scientific notation.	The student operates with radicals involving rational numbers and algebraic expressions. The student solves contextual problems involving scientific notation.

Algebra **Algebra I**	The student has not demonstrated a procedural understanding of algebra. The student has demonstrated only partial mastery of solving equations, graphing, and properties of functions.	The student extends arithmetic and geometric patterns. The student understands the basic procedures of algebra. The student combines simple algebraic expressions involving addition and/or multiplication. The student solves linear equations and inequalities. The student graphs linear equations and inequalities in slope-intercept form. The student solves a quadratic equation using a graph. The student solves a system of linear equations. The student identifies domain and range from a set of ordered pairs or from a table. The student translates between different representations of linear functions. The student finds the GCF of the terms of a polynomial and factors quadratic expressions using concrete models.	The student uses algebraic thinking in generalizing familiar patterns. The student simplifies basic algebraic expressions using multiple operations. The student solves and graphs linear equations and absolute value equations. The student solves quadratic equations. The student solves systems of linear equations and inequalities. The student identifies domain and range from a graph and determines if a relation is a function given any representation. The student evaluates a function at a specified rational value. The student translates between different representations of linear and nonlinear functions. The student factors quadratic expressions. The student manipulates formulas and solves literal equations.	The student uses algebraic thinking in generalizing non-routine patterns. The student writes, solves, and graphs compound inequalities and absolute-value inequalities. The student constructs and solves systems of linear equations and inequalities by various methods. The student understands and uses relations and functions and various representations to solve contextual problems. The student factors polynomials. The student identifies and analyzes distinguishing properties of linear and nonlinear functions.
Geometry and Measurement **Algebra I**	The student has not demonstrated a consistent ability to use algebraic reasoning in geometric applications.	The student solves problems using the Pythagorean Theorem. The student uses the number line to find the midpoint and distance between two points.	The student explains and applies the appropriate strategy to determine the length and midpoint of a segment or the area of a figure in a coordinate plane. The student solves contextual problems using the Pythagorean Theorem.	The student uses algebraic reasoning in applications involving geometric formulas and contextual problems. The student applies and converts appropriate units of measure contextually.

Data Analysis, Statistics, and Probability Algebra I	The student demonstrates little or no ability to use statistical thinking to draw conclusions and make predictions.	The student determines a line that fits linear data. The student determines simple theoretical and/or experimental probability.	The student draws conclusions and makes predictions using statistical thinking. The student identifies the effect on the measures of central tendencies when data values are changed. The student recognizes the relationship between the probability of an event and the probability of its complement.	The student analyzes and justifies conclusions and predictions made from statistical thinking.

Geometry

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Geometry	The student has not demonstrated an ability to give descriptions or definitions of geometric shapes. The student is not able to use definitions, postulates, and theorems to complete or write proofs.	The student gives precise descriptions of geometric shapes in the plane. The student uses definitions, postulates, and theorems to solve basic problems.	The student gives precise mathematical descriptions or definitions of geometric shapes in the plane. The student solves problems involving two-dimensional figures using visualization. The student uses definitions, postulates, and theorems to solve problems and complete parts of a proof.	The student gives precise mathematical descriptions or definitions of geometric shapes in three-dimensional space. The student solves problems involving three-dimensional figures using visualization. The student uses definitions, postulates, and theorems to write a proof.
Number and Operations Geometry	The student has not demonstrated an ability to use and understand vector representations.	The student connects approximate values to the symbol for pi. The student identifies vectors in various representations. The student performs operations on vectors algebraically.	The student correctly applies pi in problem solving. The student recognizes and uses properties of equality/congruence in problem solving and basic proofs. The student performs operations on vectors graphically.	The student recognizes and uses properties of equality/congruence in problem solving and complex proofs. The student recognizes and applies real number properties to vector operations.

Algebra Geometry	The student has not demonstrated an ability to understand the relationship between geometry and algebra.	The student uses the midpoint, distance, and slope formulas given two points. The student recognizes a single transformation given a diagram. The student graphs a circle given its center and radius.	The student uses the midpoint, distance, and slope formulas to solve contextual problems. The student uses coordinate geometry to prove characteristics of polygonal figures given the figure in a coordinate plane. The student identifies the image of a transformation given the coordinates of the pre-image. The student graphs a circle given its equation in standard form.	The student uses coordinate geometry to prove theorems about general polygonal figures. The student describes algebraically the effect of a single transformation on two-dimensional geometric shapes in the coordinate plane. The student writes the equation of circle in standard form from a description or its graph.
Geometry and Measurement Geometry	The student has not demonstrated a competency in developing geometric intuition and visualization. The student is not able to apply geometric properties.	The student identifies and describes geometric properties of plane figures (including points, lines, and polygons). The student solves basic problems involving congruency, similarity, right triangles and circles. The student determines the sine, cosine, and tangent ratios of an acute angle of a right triangle given the side lengths. The student computes measures for two-dimensional and three-dimensional figures.	The student applies geometric properties of angles, parallel lines, polygons, circles, two-dimensional transformations, and congruency and similarity of triangles to solve problems and justify reasoning in proofs. The student uses tools of right triangle trigonometry to solve basic problems. The student computes the surface area and volume of solids using a cross section.	The student can differentiate between Euclidean and non-Euclidean geometries. The student interprets properties and proves theorems involving polygons and other geometric figures. The student identifies, describes and applies transformations on a three-dimensional shape. The student writes proofs and/or solves problems using definitions, postulates, and theorems about points, lines, angles, and planes. The student uses tools of right triangle trigonometry to solve contextual problems, including the surface area and volume of solids.

Data Analysis, Statistics, and Probability Geometry	The student has not demonstrated an understanding of the basic principles of geometric probability.	The student estimates or calculates simple geometric probabilities using a pie chart.	The student calculates simple geometric probabilities using area given a visual representation.	The student solves contextual problems involving geometric probability using area.

Algebra II

Standard	Below Basic	Basic	Proficient	Advanced
Standards	Students who perform at this level **have not** demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are not prepared for the next level of study.	Students who perform at this level demonstrate **partial** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are minimally prepared for the next level of study.	Students who perform at this level demonstrate **mastery** in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are well prepared for the next level of study.	Students who perform at this level demonstrate **superior** mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skills specified by the grade/course level content standards and are significantly prepared for the next level of study.
Mathematical Processes Algebra II	The student has not demonstrated an ability to use technology to find and use mathematical models of non-linear bivariate data.	The student uses technology to find a mathematical model that best fits bivariate data using non-linear functions (including transcendental functions).	The student uses mathematical language appropriately in reasoning and interpretation. The student translates among multiple representations of algebraic functions. The student uses technology to identify and describe patterns in data using non-linear and transcendental functions that approximate bivariate data.	The student uses mathematical language and axiomatic structure appropriately in reasoning and interpretation. The student translates among multiple representations of algebraic and transcendental functions. The student uses technology to find mathematical models of non-linear bivariate data to solve contextual problems.
Number and Operations Algebra II	The student has not demonstrated the skills necessary to perform operations with complex numbers and algebraic expressions.	The student simplifies, adds, and subtracts complex numbers. The student uses the number system, from real to complex, to solve basic quadratic equations.	The student simplifies and performs operations on complex numbers. The student can represent a complex number in the complex plane. The student uses the number system, from real to complex, to solve equations.	The student connects numeric, analytic, graphical, and verbal representations of both real and complex numbers. The student uses the number system, from real to complex, to solve contextual problems.

Algebra Algebra II	The student has not demonstrated the ability to understand, analyze, transform, and generalize mathematical patterns, relations, and functions.	The student demonstrates a procedural understanding of algebra. The student determines the inverse of basic functions including the inverse of a simple exponential function. The student identifies and graphs the four conic sections centered at the origin. The student calculates the nth term of an arithmetic or geometric series. The student simplifies rational expressions by factoring.	The student performs all operations with polynomials. The student solves systems of equations involving quadratics or three variables. The student determines the rational zeros of a polynomial function. The student solves exponential equations. The student translates the graphs of conic sections. The student calculates the sum of a finite arithmetic and a finite geometric series. The student performs operations on rational expressions including those with rational and negative exponents. The student factors polynomials using a variety of methods.	The student identifies and analyzes distinguishing properties of exponential, polynomial, rational, and radical functions including articulating restrictions on variables. The student analyzes and identifies the key characteristics of conic sections. The student effectively uses the binomial theorem. The student solves mathematical or contextual problems using quadratic, rational, radical, and exponential equations, finite or infinite geometric series or systems of equations.
Geometry and Measurement Algebra II	The student has not demonstrated an ability to use and understand the trigonometric functions.	The student identifies the graphs of sine, cosine, and tangent functions. The student can determine the sine and cosine of the quadrantal angles using the unit circle. The student identifies the coefficient of a sine or cosine equation that affects the amplitude or the period of the graph.	The student demonstrates knowledge of the unit circle trigonometry. The student determines the domain and range of the six basic trigonometric functions given their graphs. The student determines the amplitude of a sine or cosine function and the period of any trigonometric function.	The student describes and articulates the characteristics and parameters of parent trigonometric functions. The student solves contextual problems using various representations of trigonometric functions.
Data Analysis, Statistics, and Probability Algebra II	The student has not demonstrated an ability to describe, interpret, and apply quantitative data.	The student reads, interprets and creates statistical graphs. The student calculates the measures of central tendency. The student finds the indicated regression	The student calculates, interprets, and uses measures of central tendency and spread, including variance and standard deviation. The student uses	The student uses data and statistical thinking to draw inferences, make predictions, and justify conclusions. The student interprets the correlation

		curve to fit a given set of linear or non-linear data using technology.	regression curves that best fit data (linear or non-linear) to make predictions. The student applies the characteristics of the normal distribution. The student distinguishes between dependent and independent events.	coefficient for a regression line. The student calculates conditional and compound probabilities.